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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY-DOCKET NO.	CONFIRMATION NO.
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EXAMINER

THOMAS, ERIC W

ART UNIT PAPER NUMBER

2831

DATE MAILED: 05/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/473,315

Applicant(s)

MOSLEY, LARRY EUGENE

Examiner

Eric W Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,3,5-8,11,12 and 30-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,3,5-8,11,12 and 30-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 21.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Introduction:

The examiner acknowledges, as recommended in M.P.E.P. 707.04, the applicant's submission of the amendment dated 4/28/03. At this point, claim 11 has been amended; and claims 30-37 have been added. Thus, claims 2-3, 5-8, 11-12, 30-37 are pending in the instant application.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/28/03 has been entered.

Claim Objections

2. Claims 35, 36 objected to because of the following informalities:

Claim 35, lines 1-2, delete "each of the at least four conductive layers" and insert --the number of conductive layers-- Appropriate correction is required.

Claim 36, lines 1-2, delete "each of the at least four conductive layers" and insert --the number of conductive layers-- Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

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(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claim 2 is rejected under 35 U.S.C. 102(e) as being anticipated by Devoe et al. (US 6,366,443).

Devoe et al. disclose in fig. 1i a capacitor comprising at least four conductive layers embedded in a dielectric; and a plurality of vias coupling the at least four conductive layers to a plurality of connection sites, wherein the capacitor has a thickness of about 1 millimeter (abstract).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. Claims 5, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stone (US 5,530,288) in view of Farooq (US 6,072,690).

Stone disclose a capacitor (col. 4 lines 25-40) connected to connection sites (see fig. 1) with a plurality of through holes (col. 4 lines 59-66). Stone does not disclose the capacitor is formed of at least four layers.

Farooq et al. teach that it is known in the art to form a capacitor having at least 4 conductive layers. It would have been obvious to a person of ordinary skill in the art to form the capacitor of Stone using at least 4 conductive layers, since such a modification would provide a capacitor having an increased capacitance.

Regarding claim 32, Stone discloses the claimed invention except for the electrodes are formed from tungsten. Tungsten is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layers of Stone using tungsten paste, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 33, Stone discloses the claimed invention except for the electrodes are formed from a palladium material. Palladium is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layers of Stone using palladium, since it has been held to be within the general skill of a worker

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in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

7. Claims 3, 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devoe et al. (US 6,366,443).

Regarding claim 3, Devoe et al. disclose the claimed invention, except for the capacitance being from 20 to 30 microfarads. It is well known in the capacitor art to form capacitors having a particular capacitance for an electrical system. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the capacitor of Devoe et al. having a capacitance of 20 to 30 microfarads since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 30, Devoe et al. disclose the claimed invention except for the electrodes are formed from a platinum material. Platinum is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layers of Devoe et al. using platinum, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 31, Devoe et al. disclose the claimed invention except for the electrodes are formed from a palladium material. Palladium is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having

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ordinary skill in the art at the time the invention was made to form the conductive layers of Devoe et al. using palladium, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

8. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farooq et al (US 6,072,690) in view of Mori (US 5,942,063).

Regarding claim 6, Farooq et al. disclose (in fig. 3c) a plurality of first conductive layers (67), each of the plurality of first conductive layers formed on a first dielectric sheet (72); a plurality of second conductive layers, each of the plurality of second conductive layers formed on a second dielectric sheet (72), and the plurality of second conductive layers interlaced with the plurality of first conductive layers; a pair of dielectric sheets (see below) having a thickness, for providing a pair of substantially rigid outer surfaces for the plurality of second conductive layers interlaced with the plurality of first conductive layers, each of the pair of substantially rigid outer surfaces having a plurality of connection sites operable for coupling the capacitor to a substrate using a controlled collapse chop connection (C4); and a plurality of vias (64, 66) coupling the plurality of first conductive layers and the plurality of second plurality of second conductive layers to at least two of the plurality of connection sites.

Farooq et al. do not disclose the thickness of the pair of dielectric sheets having a thickness of slightly greater than 7 microns. Mori teaches it is known in the art to form ceramic dielectric sheets having a thickness of 7 microns (see col. 1 lines 30-50). It would have been an obvious matter of design choice to form the pair of dielectric sheets

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(all the ceramic sheets) having a thickness of slightly greater than 7 microns, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 7, Farooq et al. disclose the claimed invention except for the material used in the conductive layers. Tungsten paste is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layers of Farooq et al. using tungsten paste, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 8, Farooq et al disclose the number of surfaces is two.

9. Claims 11-12, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farooq et al (US 6,072,690) in view of Naito et al. (US 6,034,864).

Farooq et al. disclose a multilayer capacitor having a pair of substantially rigid (*inherent feature of a fired ceramic) outer surfaces; and at least two of the plurality of pads are capable of being coupled to a substrate using a solder bump, wherein the multilayer capacitor includes a number of parallel conductive layers and the number of pads are coupled to the number of parallel conductive layers through vias. Farooq et al disclose the claimed invention except for the number of conductive layers is greater than about 50. The capacitor of Farooq et al. is not limited to the illustrated embodiments. Naito et al. claims a capacitor having any number (above 50) electrodes

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can be used in a capacitor. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the capacitor of Farooq et al. using more than 50 electrodes layers as taught by Naito et al, since such a modification would increase the capacitance of Farooq et al.

Regarding claim 12, Farooq et al. disclose the claimed invention except for the number of pads is greater than about 4000. The capacitor of Farooq et al. is not limited to the illustrated embodiments. It is well known in the capacitor art to use more than 4000 connecting pads. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form a capacitor having more than 4000 pads, since such a modification would increase the number of connection points thereby reducing the need to use multiple passive components; and it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ.

Regarding claim 36, Farooq et al. disclose the claimed invention except for the electrodes are formed from a platinum material. Platinum is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layers of Farooq et al. using platinum, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

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10. Claim 34-35, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farooq et al (US 6,072,690) and Naito et al. (US 6,034,864) as applied to claims 11, and 36 above, and further in view of Mori (US 5,942,063).

Regarding claim 34, Farooq et al. disclose the claimed invention except for the thickness of the pair of dielectric sheets having a thickness of slightly greater than 7 microns. Mori teaches it is known in the art to form ceramic dielectric sheets having a thickness of 7 microns (see col. 1 lines 30-50). It would have been an obvious matter of design choice to form the pair of dielectric sheets (all the ceramic sheets) having a thickness of slightly greater than 7 microns, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

Regarding claim 35, Farooq et al. disclose the claimed invention except for the material used in the conductive layers. Tungsten paste is a well-known material used as electrodes in the capacitor art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the conductive layers of Farooq et al. using tungsten paste, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 37, Farooq et al. disclose the claimed invention except for the thickness of the pair of dielectric sheets having a thickness of slightly greater than 7 microns. Mori teaches it is known in the art to form ceramic dielectric sheets having a thickness of 7 microns (see col. 1 lines 30-50). It would have been an obvious matter of

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design choice to form the pair of dielectric sheets (all the ceramic sheets) having a thickness of slightly greater than 7 microns, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art.

Response to Arguments

11. Applicant's arguments with respect to claims 2-3, 5-8, 11-12 have been considered but are moot in view of the new ground(s) of rejection.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric W Thomas whose telephone number is (703) 305-0878. The examiner can normally be reached on Mon & Sat 9:00AM - 9:30PM; Tues-Fri 5:30PM-10:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 703-308-3682. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

ewt
May 27, 2003

 5/28/03
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